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To:

Mike Futch, Dakota Access, LLC

From:

Craig Erdman

Jon Robison, PE Mark Miller, PE

Date:

May 31, 2016

File:

18782-011-00

Subject:

Landslide Hazard, Vicinity of Little Missouri River Crossing,

Dakota Access Pipeline Project, North Dakota



GeoEngineers completed a geologic hazards evaluation for the Dakota Access Pipeline (DAPL) proposed route in North Dakota in the vicinity of the Little Missouri River, and provided those results to Dakota Access, LLC (Dakota Access) in our memorandum dated April 24, 2015. This work was undertaken primarily to evaluate a previous route (April 21, 2015 route, shown in red in the attached Figure 1), which crossed a large landslide complex on the south bank of the Little Missouri River between MP 16.2 and MP 17.4, and traversed other mapped historical landslide features on the north bank of the Little Missouri River.

Our work included both desktop review of geology and landslide mapping, and field reconnaissance evaluations of the active landslides. We also assessed geologic risk in the vicinity of an alternate alignment (July 10, 2014 route, shown in green in Figure 1) and concluded that the ground in the vicinity of this alternate alignment appeared stable to the south of the Little Missouri River but crossed landslide-prone areas north of the river. Based on the results of our engineering and geological evaluations, and other considerations, the "current" DAPL alignment was developed (December 12, 2015 alignment, shown in blue in Figure 1).

This memorandum references our previous work and provides our review of the updated DAPL route (December 15, 2015 alignment) in the vicinity of the referenced landslide features.

## **ENGINEERING GEOLOGY REVIEW OF CURRENT ALIGNMENT**

As shown in the attached Figure 1, the current DAPL route avoids the area of active and historic landslides (the "landslide complex"), south of the Little Missouri River. Further, the current route is located within a separate slope, as divided by topography and drainage areas; this separation limits risk of active landsliding impacting the current route. The steep slopes along the proposed alignment north of the river will be crossed using horizontal directional drilling. Accordingly, we judge the landslide risks to the current route to be low. Please refer to the above referenced memorandum for detailed engineering and geology analysis and discussion of the referenced geologic features.

We appreciate the opportunity to be of continued service to Dakota Access on this project. Please let us know if you have any questions or concerns.

**EXHIBIT B** 

Memorandum

www.geoengineers.com

BROFESSION

JONATHAN L. ROBISON

EG